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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/537,877	06/07/2005	Gillian Antoinette Mimmagh-Kelleher	NI 021259	8406
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			EXAMINER SHAH, SAMIR M	
			ART UNIT 2856	PAPER NUMBER

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Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No. 10/537,877	Applicant(s) MIMNAGH-KELLEHER ET AL.	
	Examiner Samir M. Shah	Art Unit 2856	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 July 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see page 5, filed 7/27/2006, with respect to the Specification and claims 4, 5, 7 and 8 have been fully considered and are persuasive. The objection of the Specification and claims 4, 5, 7 and 8 has been withdrawn.
2. Applicant's arguments filed 7/27/2006 have been fully considered but they are not persuasive.
 - (a) In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., "coordinate system") are not fully supported by the Applicant's written description (please note the 35 U.S.C. 112(1st) rejection below, in this Office Action).
 - (b) Moreover, as to the argument, "Hutchings teaches processing the sensor signals as respective vector components to produce a resultant vector in a reference coordinate system that is different than the translational coordinate system from which the sensor signals are indicating motion therein", note that Hutchings discloses "At any point along the trajectory...the components of motion in the reference frame can be determined from the...accelerometers and...sensors in the translational coordinate system" (column 10, lines 16-19; equations (3), (4), (5)). Therefore, the signals produced by the sensors of Hutchings, are indeed "indicative of motion experienced" within the reference coordinate system and the resultant vector produced by the processor of Hutchings is also within the reference coordinate system, as recited in Applicant's claims 1 and 7.

Claim Objections

3. Claims 4 and 8 are objected to because of the following informalities:
- (a) As to claim 8, it is suggested that the symbol used to denote the magnitude of the resultant vector should be changed to -- $|a|$ -- (4th line of the claim).
- (b) As to claims 4 and 8, line 3, delete " $\sqrt{a_x^2 + a_y^2 + a_z^2}$ " and replace it with -- $\sqrt{a_x^2 + a_y^2 + a_z^2}$ --.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 1-9 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

As to claims 1 and 7, there is no support, in the written description, for "coordinate system". There is no explanation in the Specification or the Drawings that show any coordinate system being employed in the instant invention. What "coordinate system" does the motion indicated by the sensor signals belong to? What "coordinate system" does the resultant vector produced from the vector components belong to?

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These are some questions that are not answered either by the written Specification or the Drawings in such a way as to provide sufficient support for the amendment, including "coordinate system", to claims 1 and 7.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1, 2, 4 and 6-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Hutchings et al. (US Patent 6,122,960 henceforth "Hutch").

(a) As to claims 1 and 2, Hutch discloses a system for measuring movement of objects including a measurement unit (49) with a plurality of motion sensors/accelerometers operable to produce respective sensor signals indicative of motion/acceleration experienced thereby within a coordinate system (column 27, lines 13-20); a processor (52)/microprocessor (56) operable to receive the sensor signals from the measurement unit and to process the sensor signals (measure a distance traversed and the speed of said object) in accordance with a predetermined method

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(column 24, lines 16-22; column 25, lines 60-61; column 27, lines 29-37), characterized in that the processor (52)/microprocessor (56) is operable to process the sensor/accelerometer signals as respective vector components to produce a resultant vector within the coordinate system (figures 3-5 and 8-14; column 9, lines 17-64; column 10, lines 54-61; equations 23 and 32).

(b) As to claim 4, Hutch discloses that the processor (52)/microprocessor (56) is operable to calculate the magnitude of the resultant vector according to the following expression: $|a|$ (or $|g|$) = $\sqrt{a_x^2 + a_y^2 + a_z^2}$, where $|a|$ (or $|g|$) is the magnitude of the resultant vector, a_x , a_y and a_z are respective sensor signals (column 15, lines 22-30; equation 25).

(c) As to claim 6, Hutch discloses that the processor (52)/microprocessor (56) is operable to calculate the direction of the resultant vector (column 9, lines 28-32; figure 3).

(d) As to claim 7, Hutch discloses a method for measuring motion characteristics of a moving object including a plurality of motion sensors/accelerometers which are operable to produce respective sensor/acceleration signals indicative of motion experienced thereby (column 28, lines 30-35); a processor (52)/microprocessor (56) receiving the sensor/acceleration signals and processing the signals in accordance with a predetermined method (measuring a distance traversed and the speed of an object) (column 24, lines 16-22; column 25, lines 60-61; column 27, lines 29-37), characterized in that the sensor/accelerometer signals are processed as respective vector

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components to produce a resultant vector (figures 3-5 and 8-14; column 9, lines 17-64; column 10, lines 54-61; equations 23 and 32).

(e) As to claim 8, Hutch discloses that the magnitude of the resultant vector is calculated according to the following expression: $|a|$ (or $|g|$) = $\sqrt{a_x^2 + a_y^2 + a_z^2}$, where $|a|$ (or $|g|$) is the magnitude of the resultant vector, a_x , a_y and a_z are respective sensor signals (column 15, lines 22-30; equation 25).

(f) As to claim 9, Hutch discloses calculating and storing the direction of the resultant vector (column 19, lines 20-27; column 20, lines 1-20).

8. Claims 1, 2, 6, 7 and 7/9 are rejected under 35 U.S.C. 102(b) as being anticipated by Jacobsen et al. (US Patent 6,160,478 henceforth "Jacobsen").

(a) As to claims 1 and 2, Jacobsen discloses a "monitoring system"/system for measuring movement of objects/persons including a measurement/monitoring unit (50) with a plurality of motion sensors (58, 60)/"at least one accelerometer" (58) operable to produce respective sensor signals indicative of motion/acceleration experienced thereby within a coordinate system (figure 2; column 5, lines 25-30); a processor/processing unit (54) operable to receive the sensor signals from the measurement/monitoring unit (50) and to process/interpret the sensor signals in accordance with a predetermined method (figure 2; column 5, lines 43-67; column 6, lines 1-22), characterized in that the processor/processing unit (54) is operable to process the sensor signals as respective vector components to produce a resultant vector within the coordinate system (figure 2; column 5, lines 25-43).

(b) As to claim 6, Jacobsen discloses that the processor/processing unit (54) is operable to calculate the direction of the resultant vector (column 5, lines 33-37).

(c) As to claim 7, Jacobsen discloses a method for measuring motion characteristics of a moving object/person including a plurality of motion sensors (58, 60)/"at least one accelerometer" (58) which are operable to produce respective sensor signals indicative of motion experienced thereby (figure 2; column 5, lines 25-33); a processor/processing unit (54) receiving the sensor signals and processing/interpreting the signals in accordance with a predetermined method (column 5, lines 43-67; column 6, lines 1-22), characterized in that the sensor signals are processed as respective vector components to produce a resultant vector (column 5, lines 25-43).

(d) As to claim 7/9, Jacobsen discloses calculating and storing the direction of the resultant vector (column 5, lines 33-37; column 6, lines 11-22).

9. Claims 1-5, 7 and 8 are rejected under 35 U.S.C. 102(e) as being anticipated by Nikolic et al. (US Patent 6,436,052 B1 henceforth "Nikolic").

(a) As to claims 1 and 2, Nikolic discloses a "system for sensing activity and measuring work performed by an individual"/system for measuring movement of objects/persons including a measurement unit/activity monitor (112) with a plurality of motion sensors/accelerometers (240) operable to produce respective sensor signals indicative of motion/acceleration experienced thereby within a coordinate system (figure 1; column 5, lines 2-5, 50-59); a processor (220)/clearinghouse (520) operable to receive the sensor signals from the measurement unit and to process the sensor signals

in accordance with a predetermined method (figures 2-4, 5A, 5B; column 7, lines 1-12; column 9, lines 25-52), characterized in that the processor (220) is operable to process the sensor/accelerometer signals as respective vector components to produce a resultant vector within the coordinate system (figures 2-4, 5A, 5B; column 12, lines 43-59; column 18, lines 7-25).

(b) As to claim 3, Nikolic discloses the motion sensors/accelerometers (240) being arranged to be mutually orthogonal (figure 2; column 7, lines 19-20; column 11, lines 25-36; column 14, lines 66-67; column 15, lines 1-4).

(c) As to claim 4, Nikolic discloses that the processor (220)/clearinghouse (520) is operable to calculate the magnitude of the resultant vector according to the following expression: $|a|$ (or $|g|$) = $\sqrt{a_x^2 + a_y^2 + a_z^2}$, where $|a|$ (or $|g|$) is the magnitude of the resultant vector, a_x , a_y and a_z are respective sensor signals (figures 2-4, 5A, 5B; column 12, lines 43-59; column 18, lines 7-25).

(d) As to claim 5, Nikolic discloses the values of $|a|$ (acceleration) being stored in a lookup table (figures 2, 3; column 7, lines 22-29).

(e) As to claim 7, Nikolic discloses a method for "sensing activity and measuring work performed by an individual"/measuring motion characteristics of a moving object/person including a plurality of motion sensors/accelerometers (240) which are operable to produce respective sensor/acceleration signals indicative of motion experienced thereby within a coordinate system (figure 1; column 5, lines 2-5, 50-59); a processor (220)/clearinghouse (520) receiving the sensor/acceleration signals and processing the signals in accordance with a predetermined method (figures 2-4, 5A, 5B;

column 7, lines 1-12; column 9, lines 25-52), characterized in that the sensor/accelerometer signals are processed as respective vector components to produce a resultant vector within the coordinate system (figures 2-4, 5A, 5B; column 12, lines 43-59; column 18, lines 7-25).

(f) As to claim 8, Nikolic discloses that the magnitude of the resultant vector is calculated according to the following expression: $|a|$ (or $|g|$) = $\sqrt{(a_x^2 + a_y^2 + a_z^2)}$, where $|a|$ (or $|g|$) is the magnitude of the resultant vector, a_x , a_y and a_z are respective sensor signals (figures 2-4, 5A, 5B; column 12, lines 43-59; column 18, lines 7-25).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

12. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hutch as applied to claim 1 above, and further in view of Nikolic, as applied to claim 1 above.

As to claim 5, Hutch fails to disclose that values of $|a|$ are stored in a lookup table.

Nikolic teaches a "method and system for sensing activity and measuring work performed by an individual" including accelerometer data being stored on a storage device (25), which can be done by employing a look-up table (column 6, lines 50-51; column 7, lines 20-30).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Hutch's apparatus to include storing values of $|a|$, in a lookup table, as suggested by Nikolic because this would enable a later access of these values for further calculations.

Conclusion

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

(a) "A continuous patient activity monitor: validation and relation to disability", D J Walker, P S Heslop C J Plummer, T Essex and S Chandler.

(b) US Patent 6,077,236 to Cunningham.

(c) US Patent 5,573,013 to Conlan.

(d) US Patent Application Publication 2002/0109600 A1 to Mault et al.

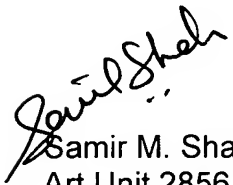
(e) US Patent 5,807,283 to Ng.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Samir M. Shah whose telephone number is (571) 272-2671. The examiner can normally be reached on Monday-Friday 9:30 am to 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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16. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Samir M. Shah
Art Unit 2856
10/5/2006



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